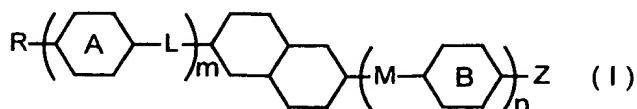


CLAIMS

1. (Amended) A composition represented by general formula (I):



(wherein, R and Z may be substituted with a halogen and represent alkyl groups or alkoxy groups having 1-16 carbon atoms, alkenyl groups having 2-16 carbon atoms, alkenyloxy groups having 3-16 carbon atoms, alkyl groups having 1-12 carbon atoms substituted with an alkoxy group having 1-10 carbon atoms, hydrogen atoms, fluorine atoms, chlorine atoms, trifluoromethoxy groups, difluoromethoxy groups, trifluoromethyl groups, 3,3,3-trifluoroethoxy groups, cyano groups, cyanato groups, hydroxy groups or carboxy groups, m and n may be the same or different and respectively and independently represent an integer of 0-2,  $m+n \leq 3$ , L and M may be the same or different and respectively and independently represent  $-\text{CH}_2\text{CH}_2-$ ,  $-\text{CH}(\text{CH}_3)\text{CH}_2-$ ,  $-\text{CH}_2\text{CH}(\text{CH}_3)-$ ,  $-\text{CH}_2\text{O}-$ ,  $-\text{OCH}_2-$ ,  $-\text{CF}_2\text{O}-$ ,  $-\text{OCF}_2-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$ ,  $-\text{CH}=\text{CH}-$ ,  $-\text{CF}=\text{CF}-$ ,  $-\text{C}\equiv\text{C}-$ ,  $-(\text{CH}_2)_4-$  or a single bond, rings A and B when present may be the same or different and respectively and independently represent a trans-1,4-cyclohexylene group in which one  $\text{CH}_2$  group or more than one non-adjacent  $\text{CH}_2$  groups in the group may be replaced by  $-\text{O}-$  or  $-\text{S}-$ , a 1,4-phenylene group in which one  $\text{CH}_2$  group or more than one non-adjacent  $\text{CH}_2$  groups in the group may be replaced by  $-\text{N}=\text{N}-$ , a 1,4-cyclohexenylene group, 1,4-bicyclo(2,2,2)octylene group, piperidine-1,4-diyl group,

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naphthalene-2,6-diyl group, trans-decahydronaphthalene-trans-2,6-diyl group or 1,2,3,4-tetrahydronaphthalene-2,6-diyl group, and although these may be substituted with a cyano group or halogen, in the case m or n represents 2, at least one of the two L or M present represents a single bond; provided that the following cases are excluded:

i. case in which m and n represent 0, R represents a non-substituted alkyl group, and Z represents a non-substituted alkyl group or cyano group;

ii. case in which either m or n represents 1, the other of m or n represents 0, ring A or ring B when present represents a 1,4-cyclohexylene group, L or M when present represents a single bond, R or Z bonded to a decahydronaphthalene ring represents a non-substituted alkyl group, and R or Z bonded to a 1,4-cyclohexylene group represents a non-substituted alkyl group, alkoxy group or alkenyloxy group;

iii. case in which either m or n represents 1, the other m or n represents 0, ring A or ring B when present represents a 1,4-cyclohexylene group, L when present represents -OCO- or M when present represents -COO-, R or Z bonded to a decahydronaphthalene ring represents a non-substituted alkyl group, and R or Z bonded to a 1,4-cyclohexylene group represents a non-substituted alkyl group or cyano group;

iv. case in which either m or n represents 1, the other m or n represents 0, ring A or ring B when present represents a non-substituted 1,4-phenylene group, L when present represents -OCO- or M when present represents -COO-, L or M when present

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substituted alkoxy group, and R or Z bonded to a naphthalene-2,6-diyl group represents a non-substituted alkyl group or cyano group;

viii. case in which n represents 2, m represents 0, R represents a non-substituted alkyl group, M when present adjacent to a decahydronaphthalene ring represents -COO-, at least one of rings B present represents a non-substituted 1,4-phenylene group, and Z represents a non-substituted alkyl group or bromine atom, or the case in which at least one of rings B present represents a pyrimidine-2,5-diyl group, and Z represents a non-substituted alkyl group, alkoxy group or cyano group;

ix. case in which m and n represent 1, ring A represents a trans-decahydronaphthalene-trans-2,6-diyl group or a 1,4-cyclohexylene group, ring B represents a non-substituted 1,4-phenylene group or 1,4-cyclohexylene group, L represents a single bond, M represents -COO-, -OCO-, -CH<sub>2</sub>O- or -OCH<sub>2</sub>-, and R and Z represent non-substituted alkyl groups; and,

applying similarly to compounds equivalent to the above using combinations of the abbreviations).

2. A compound according to claim 1 wherein, ring A and ring B when present respectively and independently represent a 1,4-phenylene group, naphthalene-2,6-diyl group, 1,2,3,4-tetrahydronaphthalene-2,6-diyl group, trans-1,4-cyclohexylene group or decahydronaphthalene-2,6-diyl group that may be substituted with fluorine atom(s).

3. A compound according to claim 1 wherein, ring A or ring B when present respectively and independently represent a 1,4-phenylene group or trans-1,4-cyclohexylene group that may be substituted with fluorine atom(s).

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4. A compound according to claim 1 wherein, L and M when present represent  $-\text{CH}_2\text{CH}_2-$ ,  $-\text{CH}_2\text{O}-$ ,  $-\text{OCH}_2-$ ,  $-\text{CF}_2\text{O}-$ ,  $-\text{OCF}_2-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$ ,  $-\text{CF}=\text{CF}-$  or a single bond.

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5. A compound according to claim 1 wherein, L or M represents a single bond.

6. A compound according to claim 1 wherein, L and M represent single bonds.

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7. A compound according to claim 1 wherein,  $1 \leq m + n \leq 2$ .

8. A compound according to claim 1 wherein, R represents an alkyl group, alkoxy group, alkenyl group or alkenyloxy group having 1-12 carbon atoms.

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9. A compound according to claim 1 wherein, Z represents a halogen atom or an alkyl group, alkoxy group, alkenyl group, alkenyloxy group or cyano group having 1-12 carbon atoms.

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10. A compound according to claim 1 wherein, R represents an alkyl group or alkenyl group having 1-12 carbon atoms, m

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represents 1, n represents 1, ring A represents a trans-1,4-cyclohexylene group, ring B represents a 3-fluoro-1,4-phenylene group or 3,5-difluoro-1,4-phenylene group, L and M represent single bonds, and Z represents a fluorine atom,  
5 chlorine atom, trifluoromethoxy group, difluoromethoxy group, trifluoromethyl group, 3,3,3-trifluoroethoxy group or cyano group.

11. A compound according to claim 1 wherein, R represents an  
10 alkyl group or alkenyl group having 1-12 carbon atoms, m represents 0, n represents 1, ring B represents a 3-fluoro-1,4-phenylene group or 3,5-difluoro-1,4-phenylene group, M represents a single bond and Z represents a fluorine atom,  
15 chlorine atom, trifluoromethoxy group, difluoromethoxy group, trifluoromethyl group, 3,3,3-trifluoroethoxy group or cyano group.

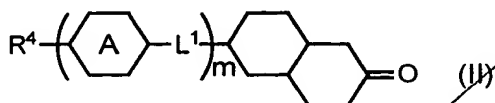
12. A compound according to claim 1 wherein, R and Z represent alkyl groups or alkenyl groups having 1-12 carbon  
20 atoms, m and n represent 1, rings A and B represent 1,4-phenylene groups or trans-1,4-cyclohexylene groups, and L and M represent single bonds.

13. A compound according to claim 1 wherein, R and Z  
25 represent alkyl groups or alkenyl groups having 1-12 carbon atoms, at least one of R or Z represents an alkenyl group, m represents 1, n represents 0, rings A and B represent 1,4-

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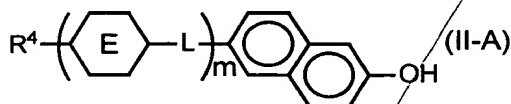
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5 (wherein,  $R^4$  represents an alkyl group, alkoxy group, alkenyl group, alkenyloxy group or alkoxyalkyl group,  $L^1$  represents  $-CH_2CH_2-$ ,  $-CH(CH_3)CH_2-$ ,  $-CH_2CH(CH_3)-$ ,  $-CH_2O-$ ,  $-OCH_2-$ ,  $-CF_2O-$ ,  $-OCF_2-$ ,  $-COO-$ ,  $-OCO-$ ,  $-CH=CH-$ ,  $-CF=CF-$ ,  $-C\equiv C-$ ,  $-O(CH_2)_3-$ ,  $-(CH_2)_3O-$ ,  $-(CH_2)_4-$  or a single bond,  $R^4$  represents an alkenyl group, alkenyloxy group or alkoxyalkyl group when  $L^1$  represents a single bond, ring A and m are the same as defined in general formula (I), and the decahydronaphthalene ring has a trans form).

15 15. A production method of general formula (II) according to  
claim 14 including: reducing a compound represented by general  
formula (II-A):

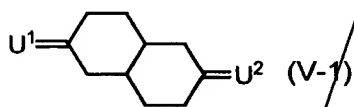


(wherein,  $R^4$  is the same as previously defined in general formula (II), ring E represents a 1,4-phenylene group or trans-1,4-cyclohexylene group, L and m are the same as previously defined in general formula (I), and the decahydronaphthalene ring has a trans form), and oxidizing the

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$$U^1 = \text{Cyclohexyl} - L - \text{Bicyclohexyl} = U^2 \quad (V-2)$$
$$(\text{CH}_2)_k$$

10 17. (Amended) A production method of general formula (V-2)  
according to claim 16 or general formula (V-1):

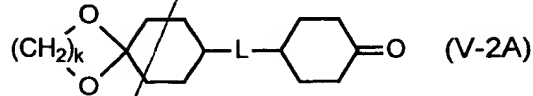
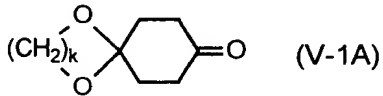

$$(\text{CH}_2)_k$$

the method including: converting a compound represented by general formula (V-1A) or general formula (V-2A):

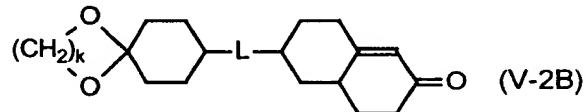
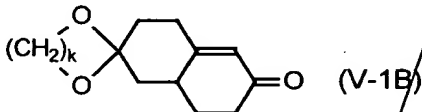


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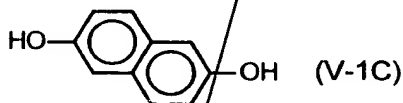


(wherein, k is the same as previously defined in general formula (V-2), and L is the same as previously defined in general formula (I)) into an enamine using a secondary amine, and reacting it with methyl vinyl ketone to obtain a compound represented by general formula (V-1B) or general formula (V-2B)



(wherein, k is the same as previously defined in general formula (V-2), and L is the same as previously defined in general formula (I)) followed by reductive hydrogenation.

18. (Amended) A production method of general formula (V-1) according to claim 17 including: reducing a compound represented by formula (V-1C) by hydrogen in the presence of metal catalyst:

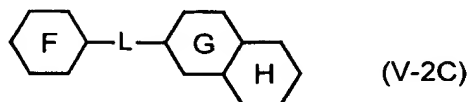


oxidizing the hydroxyl groups as necessary, and protecting the carbonyl groups as necessary.

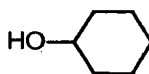
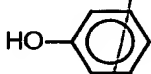
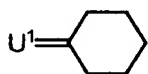
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19. A production method of general formula (V-2) according to claim 16 including: reducing a compound represented by general formula (V-2C):



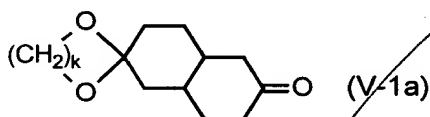
(wherein, although ring G represents a cyclohexane ring or  
5 benzene ring, a single bond(s) of the cyclohexane ring may be  
replaced by double bond(s), and although rings F and H  
respectively and independently represent the following  
structures:



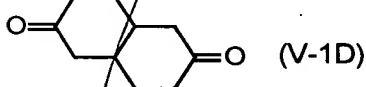
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(wherein,  $U^1$  is the same as previously defined in general formula (V-1) or general formula (V-2)), a single bond(s) of the cyclohexane ring may be replaced by double bond(s)), oxidizing the hydroxyl group as necessary, and further  
 5 protecting the carbonyl group as necessary.

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 20. A production method of general formula (V-1a):



(wherein, k is the same as previously defined in general formula (V-1) or general formula (V-2)), which is one of the  
 10 structures of general formula (V-1) according to claim 16, including monoacetalation of a compound represented by general formula (V-1D):



21. A liquid crystal composition containing a compound  
 15 according to any of claims 1 through 13.

22. A liquid crystal device having for its constituent feature the liquid crystal composition according to claim 14.

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 20 23. An active matrix drive, liquid crystal device that uses the liquid crystal composition according to claim 14.

24. A super twisted nematic liquid crystal device that uses the liquid crystal composition according to claim 14.

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